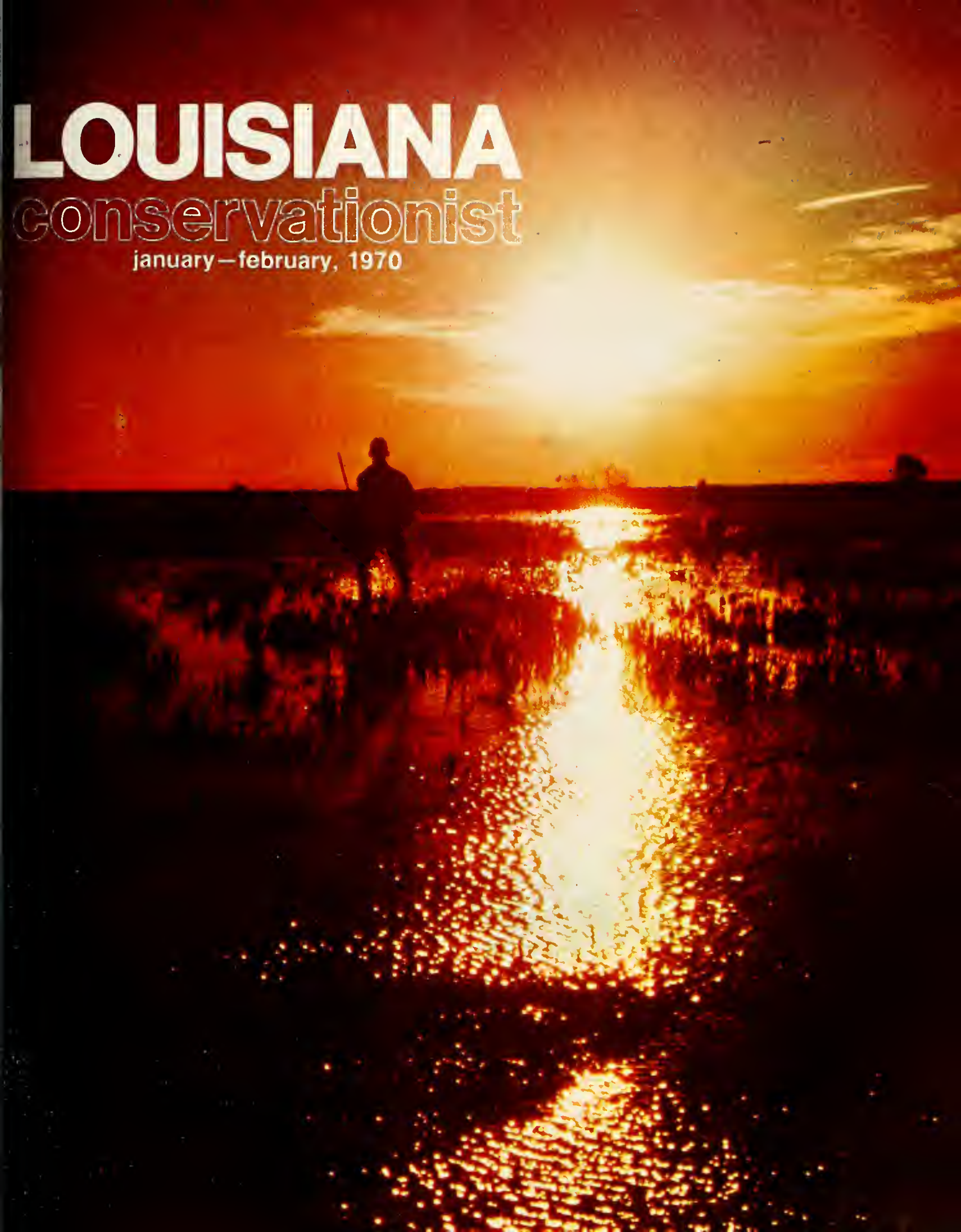
LOUISIANA conservationist

january—february, 1970



□ □ □ □ □ comments □ □ □

Progress, therefore, is not an accident, but a necessity . . . It is a part of nature.
—Herbert Spencer.

The holidays are over and the hunting seasons are moving progressively to a close. The end of February will bring the close of all hunting until next fall, save the spring wild turkey season. Meanwhile there is still game to be harvested and winter fishing in gulf waters is so excellent that it is the envy of visitors to Louisiana.

As the hunting seasons draw to a close and the holidays are stored as fond memories that will be fully savored during the passing years there comes a time for reflection.

January and February are the months when it is customary for persons to look back upon the past year and evaluate it. In doing so, they bring into sharp focus programs and activities that were not completed, along with a measure of satisfaction in accomplishments marking a year that is now history.

It would be impossible to fully evaluate the past year without instinctively charting a course for the months ahead. In the field of wildlife management plans for the months ahead are not mere "New Year's Resolutions" but detailed programs of action to be executed.

There are many fields of activity in which the Louisiana Wild Life and Fisheries Commission must demonstrate its leadership in 1970. These cover a wide range of subjects and present diversified challenges.

One of the acute and continuing needs for the Commission is the acquisition of additional lands—both marsh lands and wooded areas—to be permanently dedicated to wildlife management and public use. It would be impossible to over-emphasize this activity. Land for wildlife is being cleared at an accelerated rate. Leasing of marsh lands by individuals and private groups continues to spiral.

In the March-April issue of the Louisiana Conservationist we plan to present a statistical report of present trends in land usages in the bottom land hardwoods; coupled with a projection of the decreases in available, huntable forms of wildlife that will occur.

Unless land for wildlife management and use by sportsmen is obtained as rapidly as possible the statistical report referred to will become stark reality. Technical advances made in game management during recent years will be impractical to implement without available lands, both private and public.

Commission - owned wildlife management areas are the only lasting answer to diminishing wooded land in which to hunt and enjoy outdoor recreation.

The preservation of estuarine areas is gaining national attention and Commission activities will be geared to additional research and full support of state and federal regulations pertaining to preservation of existing estuaries.

Pollution abatement activities are certain to be increased during the months ahead. It would be unrealistic to predict that Commission-generated programs of enforcing existing laws pertaining to pollution will correct the damages that have been done and will continue to be done to environmental surroundings and wildlife and fisheries resources. A beefed-up enforcement and control program will reduce obvious pollution incidents; however, even a national effort continued over a long period will only curtail but not cure present ills.

Clark M. Hoffpauer, Director

Existing research and management programs will be expanded during the months ahead. While devoid of glamour these programs are the backbone of Commission activity. Collectively they culminate in more available game and fish to be harvested by sportsmen. These programs of research and management also result in larger yields of commercial fisheries and fur resources.

Each passing year finds that the Louisiana Wild Life and Fisheries Commission is delegated more responsibilities. They transcend the routine duties of wildlife resource management and enforcement of game and fish laws which the public often is inclined to consider the only functions of the Commission.

In order to accomplish the expanding programs and carry out the responsibilities of the Commission it is necessary that funds be made available to fully implement activities and subsequent benefits expected by the public.

It follows then that the Commision must have public understanding of its overall objectives, financial needs, and increasing responsibilities. With this public understanding, there must be public support if the Commission is to continue to progress.

LOUISIANA conservationist

Published Bi-Monthly in the interest of conservation of Louisiana's natural resources by the Wild Life and Fisheries Commission,
400 Royal Street, New Orleans, Louisiana 70130

CLARK M. HOFFPAUER, Director

R. K. YANCEY, Asst. Director

L. S. ST. AMANT, Asst. Director

SAM MURRAY
Executive Assistant

TED O'NEIL
Chief, Fur Division

ROBERT LaFLEUR
Chief, Water Pollution Control Division

JOE L. HERRING
Chief, Fish and Game Division

ALLAN ENSMINGER
Chief, Refuge Division

CHARLES R. SHAW
Pittman-Robertson Coordinator

HARRY SCHAFER
Dingell-Johnson Coordinator

LEONARD NEW
Chief, Enforcement Division

TED FORD
Chief, Oyster, Water Bottoms and Seafood Division

LARRY COOK
Fiscal Officer

W. G. McCARROLL
Personnel Officer

RUDY DUVILLE
Building Superintendent

McFADDEN DUFFY
Information Officer

I give my pledge as an American to save and faithfully to defend from waste the natural resources of my country—its soil and minerals, its forests, waters and wildlife.

JOHN J. McKEITHEN, Governor

LOUISIANA WILD LIFE AND FISHERIES COMMISSION

JERRY G. JONES, Chairman	*Cameron*
H. CLAY WRIGHT, Vice-Chairman	*Evergreen*
JOHN E. KYLE, JR.	*Berwick*
JIMMIE THOMPSON	*Alexandria*
HOBSON NORRIS	*West Monroe*
CLARENCE A. GUIDRY	*Houma*
JAMES L. WINFREE	*Baton Rouge*

IN THIS ISSUE

THE POLLUTION CRISIS—Challenge of the 70's 4
BIRD OF THE MONTH 9
WALKING CATFISH 10
SNOW 12
FROM BEYOND THE NORTH WIND 14
LOUISIANA SHELL GAME 20
GREENBRIERS FOR WILDLIFE 23
SNAPPERS ARE SOCIABLE 26
THE CHRISTMAS GUN 28

LOUISIANA CONSERVATIONIST MAGAZINE
VOLUME 22 NUMBERS 1 and 2
400 ROYAL STREET • NEW ORLEANS, LOUISIANA 70130

Subscription Free to Louisiana
Residents Upon Written Request

Editor	McFADDEN DUFFY
Staff Writer	LYN JOHNSON
Photographer	ROBERT DENNIE
Art /Design	KATHLEEN NORRIS

Lithography by CENTURY, NEW ORLEANS

Permission to reprint material in this publication will be granted provided that it is not used for advertising or commercial purposes and provided that proper credit is given. Contributions and photographs are welcome, but LOUISIANA CONSERVATIONIST cannot be responsible for loss or damage to unsolicited material. Manuscripts should be addressed to Editor, LOUISIANA CONSERVATIONIST, Wild Life and Fisheries Commission.

Forms 3579 to be sent to LOUISIANA WILD LIFE AND FISHERIES COMMISSION, 400 Royal St., New Orleans, Louisiana 70130.
Second-Class Postage Paid at New Orleans, Louisiana

> "The 1970s absolutely must be the years when America pays its debt to the past by reclaiming the purity of its air, its waters and our living environment. It is literally now or never."
>
> —President
> Richard M. Nixon
> January 1, 1970

THE POLLUTION CRISIS

by Lyn Johnson

The President of the United States has issued a declaration of war . . . A massive campaign to span the continent . . . A crusade to affect the entire world.

It will be a long, hard war, one which will encompass every living, breathing thing—plant, animal human. Soldiers in the vast battle will be men, women and children armed with scientific technology, legislation and education.

Environmental quality will be the challenge facing the decade of the Seventies.

Our total environment—air, water, soil, forests, wildlife, minerals—is on the brink of annihilation. Leading biologists are predicting an estimated 35 to 100 years until the end of life on earth. This frightening death sentence

4

5

6

opposite page: 1. burn—BRINE & FERTILIZER. 2. ruinous rainbow—OIL and CHEMICAL SLICK. 3. manufacturing—GREASE. 4. the shadow of progress is often dark—OIL. 5. exploitation haste—RESOURCE WASTE. 6. wasted energy, wasted stream—GAS. 7. stagnation—organic waste from SUGAR MILLS and SEWAGE.

CHALLENGE OF THE 70'S

must be averted by immediate action to improve the environment which has deteriorated over the past hundreds of years.

Founders of the country realized the potential wealth of the untapped natural resources on the continent which held a myriad of pure waterways, thickly wooded timberlands, fertile soil and bountiful wildlife.

The potential was there. Man found seemingly endless amounts of minerals—oil, gold, gas, coal, lead, sulphur and more. They mined the guts out of the country. Fortunes were made without a thought to future depletion. The westward movement carried thousands across the continent in wagons, on railroads, then automobiles and now supersonic jets.

Ingenuity, ambition and technology tamed a wild countryside and built the greatest nation on earth. Modern technology has created an artificial environment fully equipped with luxuries and conveniences never dreamed about before. The jet age can speed men to the moon and can circle the earth in hours.

But there is a price to pay for this Golden Age of Prosperity. The debt is exorbitant.

Look around you. Try to find a clear, bubbling stream. Take a deep breath without choking. Count the acres of lush, green prairies untouched by erosion, roads, airports and cities. Look at the growing list of endangered wildlife species and the increasing number of extinct species. Think of what might happen in 10 or 20 years.

America the beautiful is now America the cess-pool.

The intricate network of waterways coursing through the country are sewers. Rivers are jammed with industrial waste, garbage and human excrement. Coastal waters of the Gulf of Mexico

8

and the Pacific Ocean are periodically coated with oil. Refineries, chemical plants, sugar and paper mills, mining operations and countless other industries continually dump untreated waste into the rivers, canals, marshes, streams and lakes.

Excessive amounts of artificial fertilizer running off into the waterways stimulate dramatic growth of algae, which in turn rapidly uses up oxygen in the water, killing fish and animals.

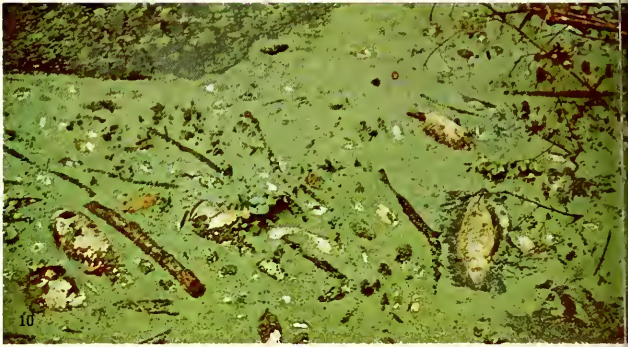
Enormous fish kills caused by human sewage, industrial waste and agricultural run-off of herbicides and pesticides in turn become a source of pollution.

The once pure air is filled with smoke, soot and deadly gasses. City weathermen give a daily pollution count as well as the temperature. But dirty air is not the exclusive problem in the cities and industrial centers. It is silently blanketing the continent because of automobiles, home heating, industry and incinerating waste.

The exact danger of air pollution to human health has not been positively pinpointed, but it is linked with lung disease and death. Man can do little or nothing once air pollution permeates the atmosphere.

Thick forests, which turn carbons in the air back into oxygen, are rapidly being cleared to meet the demands of an exploding population. The rolling prairies are disappearing into eroded wastelands, highways, airports and sprawling cities.

America gets more crowded every day. The population has boomed from nearly four million persons in 1790 to more than 200 million persons estimated in 1969. The distribution of people in 1790 was 4.5 persons per square mile. Today, there are about 57 persons per square mile. Small wonder that the Department of the Interior

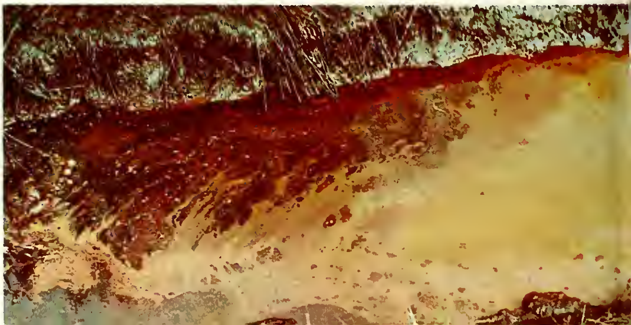


10

8. faulty equipment—CRUDE OIL & OILFIELD BRINE.

9 & 10. In polluted waters, organics breakdown—DEATH & DECAY.
11. persistent pollution—PETRO-CHEMICAL progress.

opposite page: 12. fish kill—MOLTEN PARAFFIN waste on fresh water seals off oxygen in salt water, it sinks to the bottom affecting oyster flavor. 13. steel epitaph for rich sod—OIL. 14. brine, oil, and fresh water do not mix. 15. washing out trucks—CHEMICAL & MASSIVE POLLUTION. 16. a hasty road a hungry bit, one small scar—part of a great wound.



has put human excrement at the top of its pollutants list.

Environmental pollution, product of our affluent society, may be killing man. It is killing the wildlife. In the last 150 years, about 40 species of animals and birds became extinct. Now the endangered species list holds 89 species.

Pollution rapidly kills wildlife as they are low members of the food chain. Natural habitat of fish, birds and animals is diminishing rapidly.

What is the solution for the mess that America's environment is in? The outlook is dark, but not completely hopeless.

On the state level, agencies such as the Louisiana Wild Life and Fisheries Commission realized the eminent danger long before the phrase "environmental crises" became fashionable. Acres of land have been purchased and leased over the years in a long-range attempt to save and protect wildlife. Refuges and wildlife management areas replace destroyed habitat.

The Louisiana commission, the director and his staff are geared to meet the challenge of the new decade and the years to follow. The Wild Life and Fisheries Commission has retrenched its forces in the never-ending fight against environmental pollution in Louisiana. The challenge of the Seventies is enormous, the task is monumental. But the commission is pulling out all stops to meet and combat the pollution crisis.

However, one state cannot complete the job alone. On the national level, Congress and the administration are listening to and heeding the warnings of the rapidly growing band of conservationists. Movement in a positive direction has begun on a large scale throughout America. It's not too late yet.

17

18

17. hidden scars—OIL WASTE accumulation. 18. fish kill—UNKNOWN.

President Nixon opened the new decade on New Year's day by signing into existence a three-man Council on Environmental Quality. This crusade on pollution of the total environment will be expensive, there will be no way to avoid the cost. The responsibility lies with everybody—all levels of government, industry, business, agriculture and the citizens of the United States.

Unless we act immediately to clean up the mess we have made in the name of prosperity and progress, the debt can never be repaid. Our environment will be destroyed.

The President pledged that all practicable means will be employed "to create and maintain conditions under which man and nature can exist in productive harmony and fulfill the social, economic and other requirements of present and future generations of Americans."

War is declared. The battle must be fought and won—literally now or never.

19. withered wasteland—SALT

AMERICAN WOODCOCK

by Charles R. Shaw

One of the most significant characteristic features of the woodcock is the long bill which is flexible at the tip. The woodcock feeds almost entirely on earthworms and the specialized bill is perfectly suited for the job. The moveable tip of the upper mandible can be moved away from the tip of the lower mandible while the bill is inserted full length, (2 or 3 inches) in the soft ground. This enables the bird to feed 2 or 3 inches beneath the surface of the ground. The round holes left by this probing process are one of the signs looked for by experienced woodcock hunters when searching for a likely place to hunt. The holes may be quite numerous since woodcock are reputed to be able to eat their weight in worms in a twenty-four hour period. Other insect material such as larvae may be taken and a few miscellaneous items but primarily this bird feeds on earthworms. This specialization may prove a serious handicap since the earthworms are known to concentrate certain of the insecticides.

Although as mentioned earlier, woodcock do breed in Louisiana occasionally, the primary breeding area lies north of us, extending up into eastern Canada. The reverse is true of the wintering range which lies mostly south of the Mason-Dixon line although there is overlapping of the two ranges. The most concentrated wintering area seems to be in central and eastern Louisiana and southwestern Mississippi.

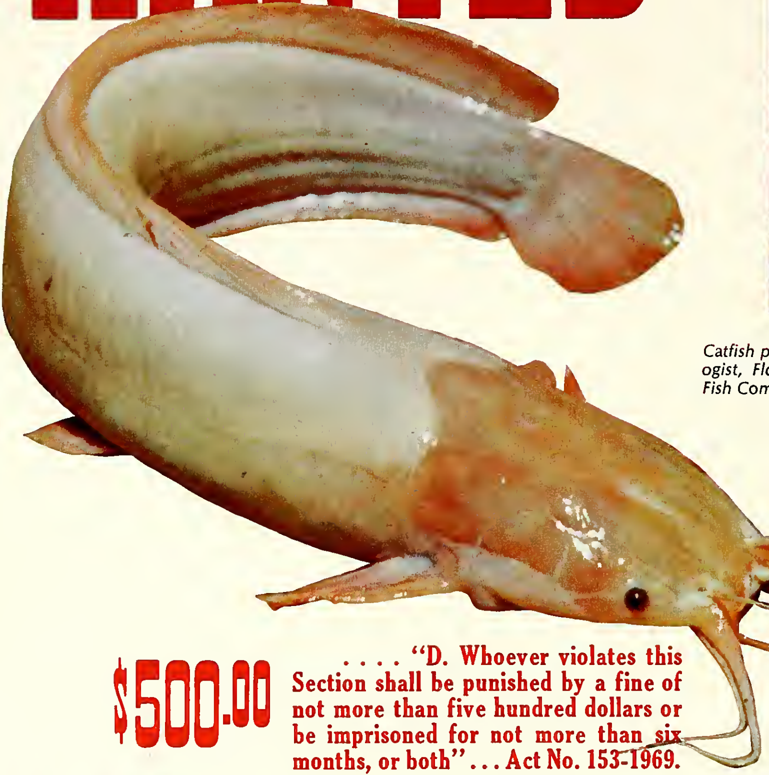
Much of the research carried out on the wintering range of this bird has been by wildlife management students and faculty from Louisiana State University who have banded many thousands of these birds by use of head lights and long-handled nets.

Because of the fact that the plumage of the woodcock blends so well into its surrounding cover, nests are hard to find unless a bird dog is used. In Louisiana the nesting may begin as early as January or February and continue into March. The four large buffy eggs are spotted with darker brownish color. The female will deposit her clutch in only a week or so and then incubate them for about 21 days.

The young birds are adept at concealment and sit tight should the parent be flushed for any reason. They grow rapidly and can even start flying in a couple of weeks or so and are well enough developed in about four weeks to be pretty much on their own.

Most of the woodcock hunting in Louisiana seems to be in conjunction with the hunting of the bobwhite quail. This is only natural, of course, since good bird dogs are a requisite for this type of bird hunting. However many hunters who particularly like to bag woodcock are turning to closer types of hunting dogs such as the Brittany spaniel rather than the wide ranging pointers. These men deliberately hunt areas frequented by woodcock and enjoy a mixed bag of birds for their efforts.

WANTED



Catfish photo by Vernon Ogilivie, Biologist, Florida Game and Fresh Water Fish Commission.

$500.00 .... "D. Whoever violates this Section shall be punished by a fine of not more than five hundred dollars or be imprisoned for not more than six months, or both" ... Act No. 153-1969.

WALKING CATFISH

Louisiana is facing what could be a major problem in the lakes, streams and waterways. To some, the idea of a walking catfish may sound ridiculous but to the Louisiana Wild Life and Fisheries Commission the exotic fish means serious trouble.

A native of Southeast Asia, the albino species began its invasion of the United States more than 10 years ago as a novelty import for aquarium enthusiasts. But the fish didn't stay put in aquariums and is now moving across the South's waterways.

The catfish, a member of the Clariidae family, Clarius batrachus, literally walks on its strong pectoral fins, and is capable of wriggling across a quarter of a mile in 24 hours or less with heavy rainfall. Equipped with an accessory air-breathing lung, the catfish can stay out of water for long periods of time or can live in oxygen-poor waters.

Majestic waterways of Louisiana boast good fishing for anyone who wets a line. But if the walking catfish moves into the ponds and streams, there may be few sport fish left for the angler.

In the wild, the voracious walking catfish could drive out other species of fish from the waters by consuming their food supply, and could pose a major threat to both sport and commercial fishing. The great concern is centered in the walking catfish's fantastic reproductive ability and its highly predacious nature.

"As far as we know, the walking catfish has not invaded Louisiana's waterways yet, but if it does we could have an extremely serious problem on our hands" said Clark M. Hoffpauer, commission director.

"What we're afraid of is that people who own a walking catfish might try to get rid of the fish by dumping it in a drainage ditch or toilet. This must not be done under any circumstances."

Hoffpauer emphasized that all pet shop owners or private individuals who have a walking catfish should contact the Wild Life and Fisheries Commission and turn it in for disposal. "Although there is a state law against having the fish, which means a $500 fine and/or a six-month jail sentence, the commission will not prosecute anyone who voluntarily brings in a walking catfish."

Several months ago, wildlife agents began discovering the exotic fish in several pet stores in the New Orleans and Baton Rouge areas. Since then, the commission has received hundreds of phone calls from people wishing to turn the catfish in.

If the walking catfish is released in the wild, there may be little recourse to stop its takeover of the rivers, lakes and bayous. In Florida, the culprit has reproduced so fast that it now covers the southern half of that state, in waters much like those in Southern Louisiana.

Vernon Ogilvie, project leader for non-native fish research for the Florida Game and Fresh Water Fish Commission, warned that once the fish gets into the wild there is no way to get rid of it. A two-year study of the exotic fish in Florida showed that the walking catfish can live in brackish or fresh water and can withstand temperatures down to 40 degrees for short periods of time, which could be a saving factor for Louisiana. The fish may have a nine-month or even year round spawning period in fresh water and the female can lay about from 2,000 to 15,000 eggs in one nest.

Although most of the fish are imported from Bangkok, Thailand, by tropical fish dealers, the Clarius catfish family is distributed from Africa and Madagascar, over all of southern Asia and including the Philippines and the Malay Archipelago. One species in Africa can grow to more than four feet in length, a frightening thought if that fish were allowed to roam in Louisiana.

The species now in this country are initially albino from a pure strain developed in Thailand. However, the Florida study showed that already an equal number of naturally pigmented walking catfish have been found with the albinos in the wild. Tests were made for edibility and the fish were found to be quite good, although they are extremely hard to skin.

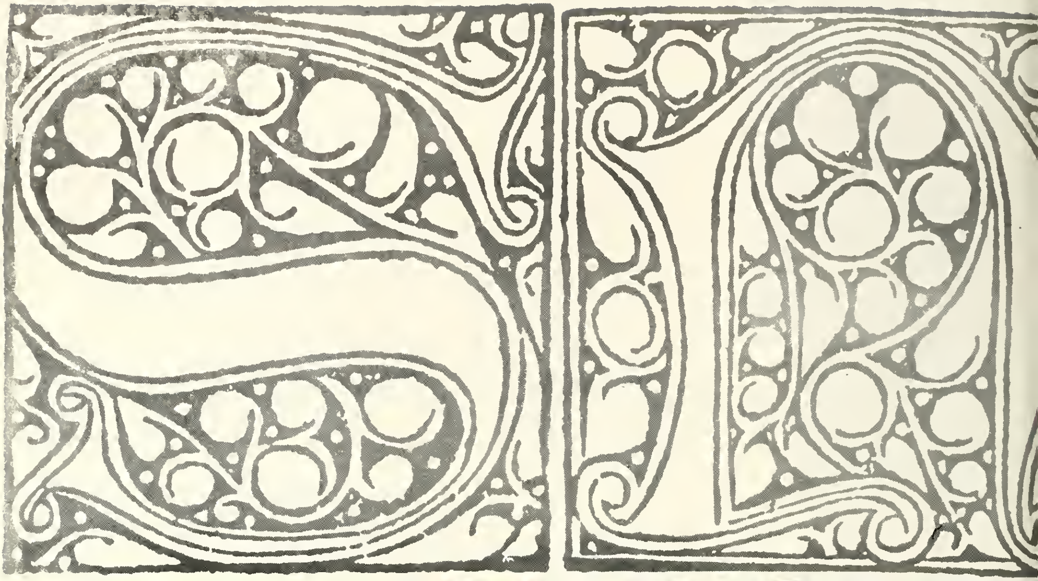
The Florida problem began years ago when a person tried to raise the catfish in ponds northwest of Ft. Lauderdale. The fish did well in the ponds, as they are easily satisfied, but during heavy rains they walked out of the ponds into the weedy canals of the farm country and spread into three counties before they were discovered. The Florida Commission personnel poisoned two miles of the canal, hoping to stop the walking catfish, but the fish simply walked to a new water supply. Then it moved into the marshes leading into the Everglades.

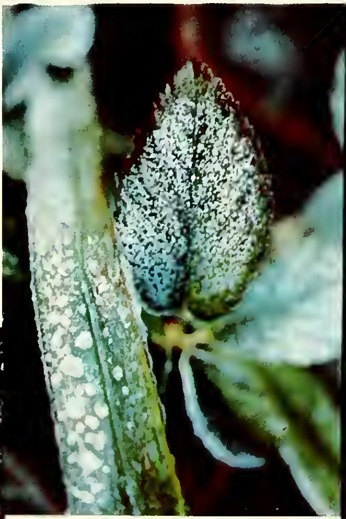
Since the exotic fish is nocturnal, wading birds do not feed on them. Garfish and bowfin or "shoepicks" do prey upon the walking catfish but to no great extent. During low water periods or natural fish kills, this species is not affected since it can breathe out of the water or bury itself in the mud. In a sense, the species left its natural enemies back in Thailand.

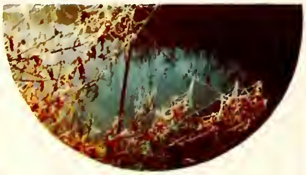
It's enemies in the United States are the various wildlife and fisheries commissions concerned with the threat to native fish. About eight states have prohibited the importation of the walking catfish. Federal legislation is pending to halt the flow of exotic species, including the walking catfish and the voracious piranha. Yet the fish continue to enter the country. Since April, 1969, in the Miami port alone, nearly 4,000 walking catfish and some 5,500 piranha have been brought into the U. S.

The only restriction on the importation is if the shipment is consigned to a state where possession is illegal. If a state has no laws banning the fish then they enter the country, possibly the waterways, with present federal government approval.

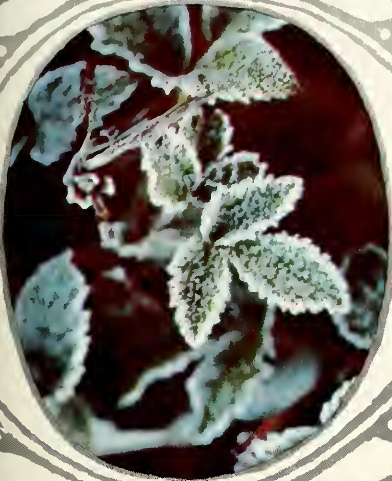
Should the walking catfish be released in the Louisiana waterways it will be a serious problem—possibly an unsolvable problem marching on.


S
N





OU

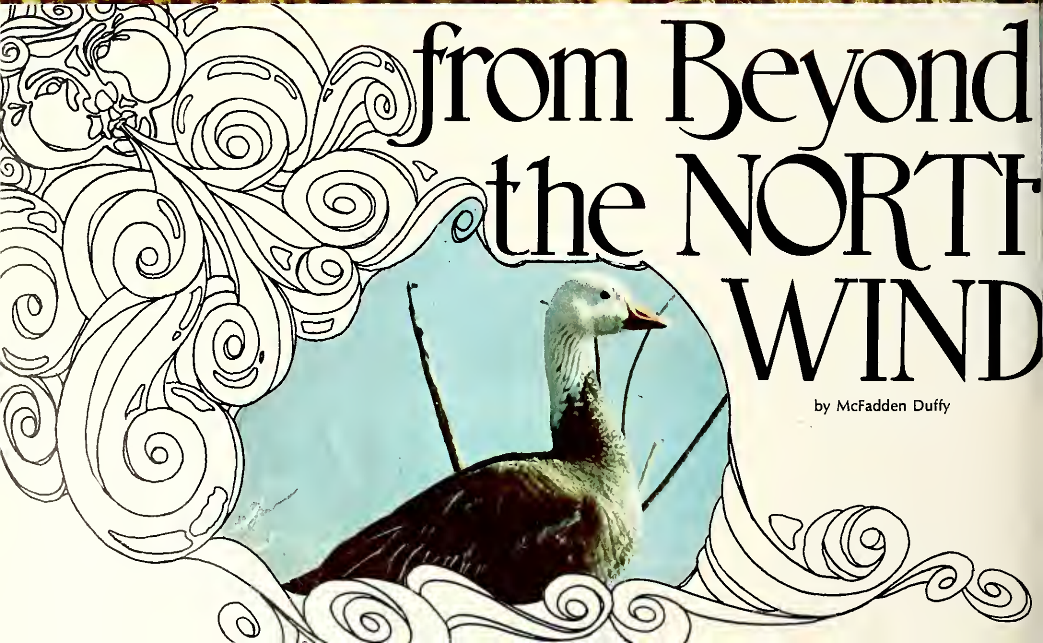


winter's decorations
are fragile…
fleeting

Photos by Robert Dennie

from Beyond the NORTH WIND

by McFadden Duffy



They came to Louisiana last October and November as they have come for centuries, from beyond the north wind. After the autumnal stopover at James and Hannah Bays, a thousand miles from the barren, raw sweeps of Baffin and Southampton Islands, they migrated virtually non-stop to the brown and green marshlands of Louisiana.

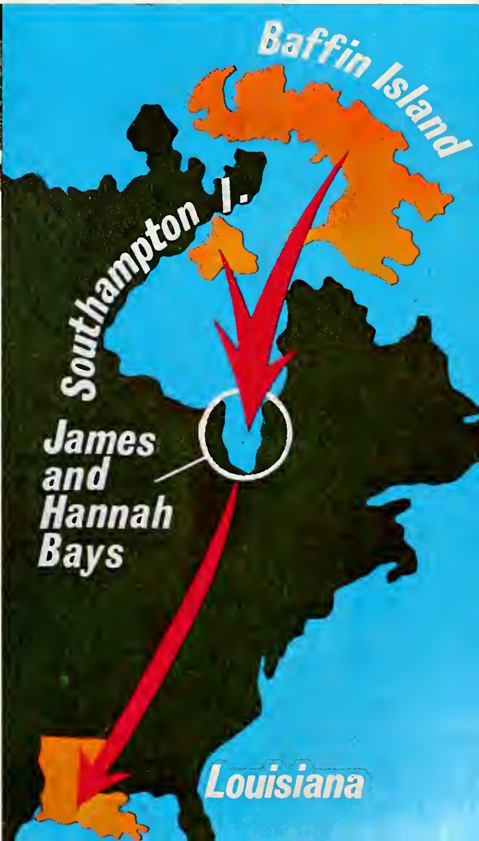
From the traditional loafing area where they annually pile on fat to condition them for the final 2,000 miles of their southward migration, blue and snow geese swept down across the heartland of America to their ancestral wintering grounds.

Across the length of the United States, from Canadian bays to the Gulf of Mexico, they came. In the crisp blue darkness of fall nights high above sleeping cities came the pulsing beat of far-near wings—the sound of wild geese in flight.

The rhythmic cadence of stroking wings made haunting music for the waterfowlers below who stirred restlessly in their sleep. Spurred by the cold north wind from which their Latin name is derived, the flights wavered southward, the geese calling to each other in crystal notes of excitement.

Their clear, silver voicings trailed over a score of states as they were irresistibly drawn by the rich, dank marshes that sprawled along the Louisiana coast near the choppy gulf. The whistling beat of their wings carried the knowledge of eternal homelessness and vagrant seasons. The countryside below them, ripe and warm in August, was cold and barren then. Withered corn stalks stood quivering watch in the fields from which fall's golden harvest had been long gathered.

By the thousands they pitched into the coastal parishes of Louisiana, joining the lesser numbers of white-fronted (speckle-bellies) geese that arrived in late September and October. Gaunt and weary, the blues and snows settled in their lush wintering grounds and began to regain their strength. Each night brought additional thousands. By the end of November over 350,000 blues and snows were in their wintering grounds, 3,000 miles from the cold, soggy tundra where they had nested.



From the mud flats of the Mississippi's mouths to the reaches of southwest Louisiana the geese will remain until mid-March or early April when they begin slipping away for their nesting grounds. The northward migration is marked with several stopovers, in sharp contrast with the virtually non-stop southward migration.

Blue and snow goose hunting in Louisiana this season was divided into two segments. The first hunting period was from November 15 through December 24. The second season on blues and snows will run from January 17 to February 15, with the same bag and possession limit of five geese.

The season, along with extension of the framework of hunting dates, is part of an experiment to determine the extent of damage caused by geese on winter pastures and rye grass. The objective is a comprehensive study of goose depredation.

Louisiana is traditionally and historically the ancestral wintering state for the greatest number of blue geese in the world. There is no longer a season on Canada geese in the state. Building of refuges in the Midwest, coupled with lavish use of surplus grain, changed the traditional migratory pattern of the regal Canada geese. Certainly not more than 5,000 Canada geese migrate to Louisiana each fall.

Efforts to build a resident flock of the Canadas at Rockefeller Wildlife Refuge, and elsewhere in southwest Louisiana, hold little promise for the waterfowler that Canada geese ever will be restored to Louisiana in huntable numbers in the near future, or numbers that would make the hunting of Canadas in Louisiana have appeal for waterfowlers.

Evidence that similar changes in the migratory pattern of blue and snow geese are being fostered now

are being carefully watched by state waterfowlers.

Goose hunting has been increasing in popularity each year due in part to overly-restrictive duck hunting regulations in the Mississippi flyway. Always an important segment of waterfowling in Louisiana, goose hunting also has taken on new meaning as additional information has been gathered about snow and blue geese.

Even to the Eskimo, blue and snow geese remained a mystery for many years. The species name *Chen hyperborea* suggests mystery. *Chen* means "goose" and *hyperborea* from the Latin means "from beyond the north wind." That was the only description Eskimos could give to these geese that came from unknown nesting lands and gathered at James and Hannah Bays in flocks that darkened the sky.

Finally, triggered by weather and instinct, one of waterfowl's most massive migrations takes place. The blues and snows leave the bays where they have rested and wing through cold skies to Louisiana. high as 6,000 feet in the southward fall migration.

It was not until 1929 that the nesting grounds of the stately blue and snow geese were discovered. J. Dewey Soper, a wildlife scientist interested in southern Baffin Island, heard a rumor in the summer of 1928. A small band of Eskimos farther north reported snow geese nesting on the bleak Foxe Basin Coast of Baffin Island.

On June 2, a year later (1929), Soper saw the first geese. He had persuaded two Eskimos to take him there. On June 26, he saw the first eggs laid, dropped on hummocks of grass springing amid rivulets of near-freezing water.

Following a lapse of five years, T. H. Manning, a Canadian scientist, camped at Southampton Island from late June to early August. He saw blues mated to snows. Men still debate about whether snow geese and blues are the same or different species.

In *Waterfowl Tomorrow,* published by the Department of the Interior, F. G. Cooch writes of blues and snows: "We can argue about the identity of snow and blue geese . . . For our purpose now, though, it is enough to point out that lesser snows and blues interbreed freely and that some family groups include both colors. That would seem to make them color phases, one of the other, and not much more."

But it is not the mystery surrounding blue and snow geese that attracts the Louisiana waterfowler. It is a tradition as old as the state itself. Hunting blues and snows in their wintering grounds is not easy. On the mud flats flanking the passes of the river it takes strength and sweat to reach the grazing, foraging flocks. A "creep" hunt calls for skill and patience.

If alarmed the geese will rise with raucous scolding, milling about and moving elsewhere or settling back in small flocks until fired upon. Geese so ruggedly earned are highly prized.

Massive but efficient marsh buggies have opened new frontiers for the goose hunter. Perhaps it is only in the pasture and rice lands of southwest Louisiana that goose hunting can be accomplished with some degree of ease.

Decoys can be placed out and geese deceived by expert callers. The supreme moment comes when distant, bugling snows and blues are turned in flight and drop lower to investigate carefully placed decoys and insistent, pleading calling from concealed hunters crouching by still, waiting retrievers.

It is the culmination of a sport that has its beginning on raw, wet sweeps where geese wisely lay their eggs beyond reach of foxes and predators. It is the Louisiana harvest of a renewable waterfowl resource that sets the pulses of hunters racing.

The goose hunter carrying his load of blues and snows from the hunting area is less impressed with the thought of wild goose for the table as he is with success at bagging geese from a distant, barren land.

He knows that in the spring they will be gone, returned to Baffin and Southampton Islands, to mate and rebuild their numbers, nesting and producing life in the far north where cold winds are born.

He knows, too, they will come again next November. He will pause and glance back at the spot where he has hunted. There will be other hunts and other Novembers when the migration reaches its peak. That day in the goose blind has been a good one. He has taken geese from beyond the north wind.

LOUISIANA SHELL GAME

by Ted B. Ford

OYSTERS FOR TOMORROW

Hurricane Camille tracked across the mouth of the Mississippi River, delivering a powerful blow to the eastern coastal marshes of Louisiana, before the main force slammed into the west central Mississippi coast on August 17, 1969.

Camille, the most damaging hurricane on record, slashed changes within the estuarine marsh areas which are magnificently interspersed with bayous, ponds and lakes east of the river.

The Louisiana Wild Life and Fisheries Commission immediately moved into action to help in recovery and to reestablish the devastated area. An extensive survey by Oyster, Water Bottoms and Seafood Division personnel showed that nearly half of the 450,000 acre public oyster seed ground area and private leases were destroyed. Some oyster producing areas were virtually intact while others

1. Center, opposite page—Preferred sites are selected in cooperation with representatives of the oyster industry. Consideration is given to bottom conditions, salinity and currents. The area is staked and surveyed to maintain a permanent record with corridors established at regular intervals over which the spray barge passes.

experienced almost total loss due to siltation, deposits of intact mud and marsh clumps, and marsh debris.

To speed recovery, the commission provided new fresh cultch material on which larval oysters can set; thus, relieving many oyster fishermen who are dependent on the public oyster seed grounds.

The Oyster Division applied for a $200,000 grant for rehabilitation of natural oyster seed grounds through the Bureau of Commercial Fisheries, Department of the Interior. The grant is provided when a natural disaster destroys a fishery resource through Public Law 88-309, the Commercial Fisheries Research and Development Act.

3

4

2, 3, and 4.—Specifications require among other items, pump units having a pressure of 90 pounds per square inch which were found to be most suitable for unloading shell barges rapidly and obtaining good dispersion of the shell.

Approved on October 17, a pro rata share of available funds gave Louisiana $176,388 for the project. The contractor who won the public bidding began an initial fall planting of about 30,000 cubic yards of large clam shell as cultch material over one square mile areas at Three Mile Pass and Black Bay. Under commission supervision the job was completed November 15.

The objective was to make some cultch immediately available for the fall oyster set or spatfall before low temperatures terminated the set. If successful at a useful level it might be possible for oyster fishermen to harvest the seed areas in September, 1970, instead of 1971. However, if it was too late, the shells would be in place for the spring and summer spatfall. The current program will continue in early May and mid-June when a similar or greater amount of shell will be planted.

It is believed that the first successful technique for planting large quantities of shell and obtaining good dispersion and coverage over a large area was developed in Louisiana in 1956 by the commission. It is now recognized as a good management technique in the oyster industry.

Planting in the Black Bay area was completed November 5, which took more than twice the time originally estimated. Planting is limited to daylight hours and good visibility. Under favorable conditions, about 2500 cubic yards or more of shell can be planted in a work day.

The early effects of winter and diminishing temperatures hampered the planting operations and the decreasing water temperatures curbed expectations of a good spatfall in that area.

Four samples from each quadrant of the Black Bay planting were taken on November 29. The clam shells were generally clean and in good condition. Fouling was considered to be minimal. A slight set of the slipper shell, Crepidula sp., was observed. Bryozoans were virtually absent.

A total of 254 clam shells from the four samples were examined. Each sample was quite similar, having no significant difference which would suggest that the earlier stages of the planting caught more than the later ones some 18 days later. Eleven shells, representing a four percent level of catch, had sets of a total of 26 oyster spat. The most recent set appeared to be there less than one week, which some would suggest that they caught when the first shell went overboard.

5

6

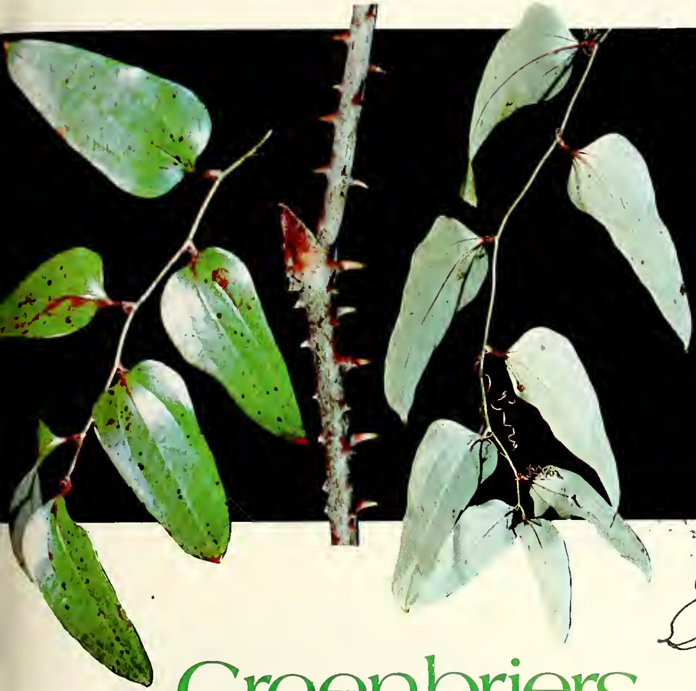
7

5, 6, and 7.—Louisiana Wild Life and Fisheries Commission personnel measure each barge load of shell to check the cubic yardage. Samples are taken and sifted to determine the amount of undersized shell. Ten percent under three-quarters of an inch in diameter is permitted —any percentage greater is deducted from that load.

Water temperatures ranged from 21-23° C on October 18, to 17-20° C on November 5 at the commission's Marine Laboratory at Grand Terre. For 12 days prior to this, the temperature range was 24-29° C. By the time the Three Mile Pass shell planting was completed, water temperatures were down to 16° C in that area.

Considering the rapid decline of these water temperatures, it is surprising that some oyster sets were obtained. With favorable water conditions next spring, for which there is good precedence, good sets of oysters should occur. The present status suggests that these two plantings will not be available for harvesting until September 1, 1971.

Still, the Louisiana Wild Life and Fisheries Commission has taken the steps to accelerate recovery of the oyster industry from the massive blow of hurricane Camille.



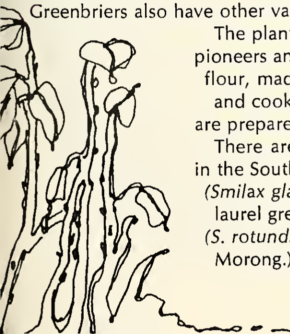
Smilax glauca Walt
(Cat greenbrier)
The white glaucous underside of cat greenbrier leaves separates it from all the rest. Most other characteristics vary a great deal. Underground tubers are not spiny but rhizomes have small prickles. The leaves remain on stems long into winter.

Greenbriers for Wildlife

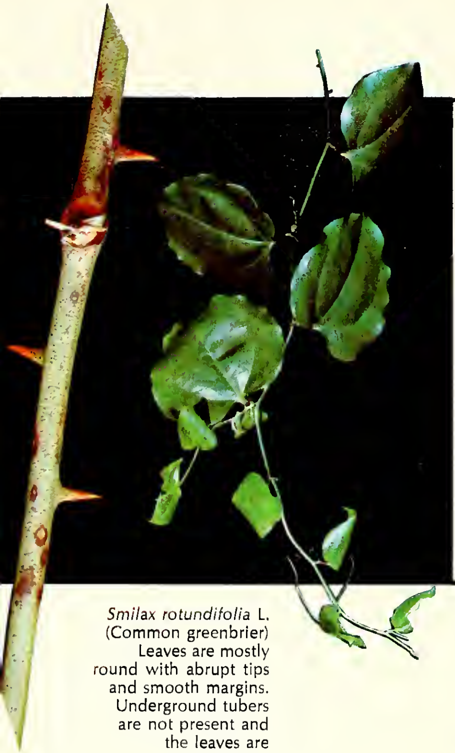
by
S. W. Oefinger and
*L. K. Halls**

Vines of the greenbrier group are a boon to wildlife in southern forests. Deer and many other species eat the twigs, leaves, and fruits, and small mammals and birds find cover in the brier patches formed by the tangled stems.

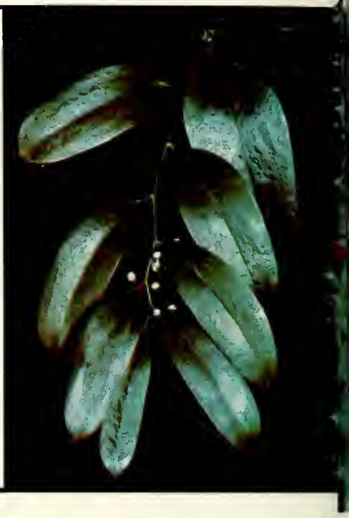
Greenbriers also have other values. Cattle eat the leaves and young stems. The plants are often used for ornamentals. Years ago pioneers and Indians ground the large fleshy tubers for flour, made a refreshing drink of the fleshy portions, and cooked the young shoots much as asparagus tips are prepared.



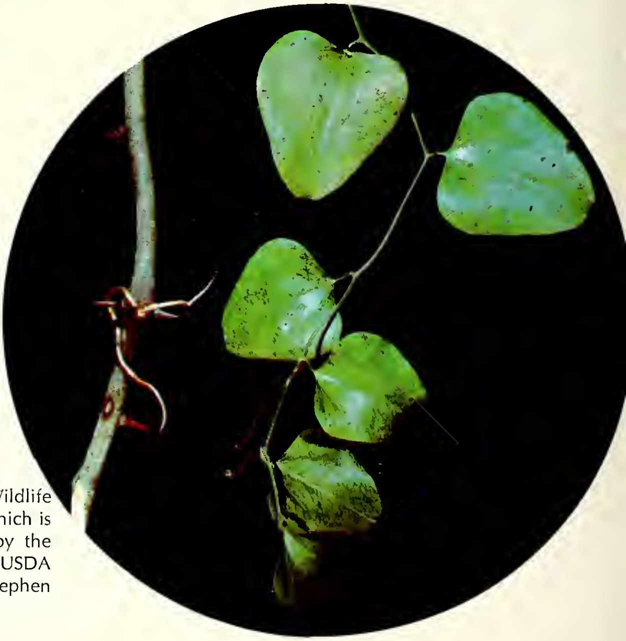
There are at least 10 different species of greenbrier in the South. The five most common are cat greenbrier *(Smilax glauca* Walt.), saw greenbrier *(S. bona-nox* L.), laurel greenbrier *(S. laurifolia* L.), common greenbrier *(S. rotundifolia* L.), and lanceleaf greenbrier *(S. smallii* Morong.).



Smilax rotundifolia L.
(Common greenbrier)
Leaves are mostly round with abrupt tips and smooth margins. Underground tubers are not present and the leaves are deciduous.



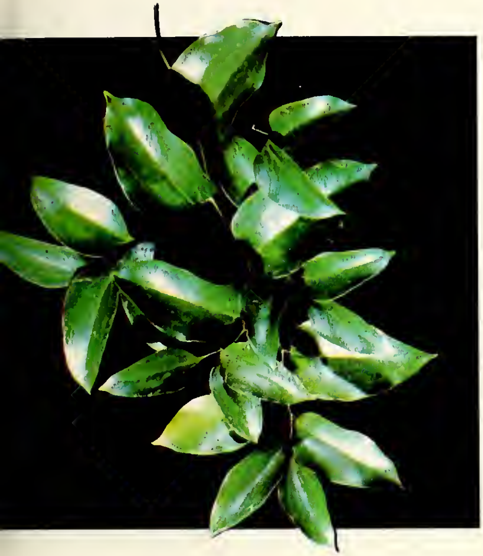
Smilax laurifolia L.
(Laurel greenbrier)
The thick leathery evergreen leaves are oblong to lance-shaped. Each leaf has three prominent veins. Spines are rarely found on new growth but are numerous on old canes. Underground stems are hard and thickened with reddish surfaces.



Smilax bona-nox L.
(Saw greenbrier)
Leaf margins are usually prickly. The stems have paired stiff spines at the nodes. Resinous-tipped spines can be found on the roots. The leaves are deciduous.

---

* The authors are on the staff of the Wildlife Habitat and Silviculture Laboratory, which is maintained at Nacogdoches, Texas, by the Southern Forest Experiment Station, USDA Forest Service, in cooperation with Stephen F. Austin State University.



Smilax smallii Morong.
(Lanceleaf greenbrier)
The shiny evergreen leaves are mostly lance-shaped and usually have five or rarely seven veins. Spines are rare and scattered. The tuberous roots are large and firm like an Irish potato.

These vines grow under a wide variety of conditions—in dense and cutover forests, in swamps and uplands, along fence rows, and in abandoned fields. They are easily recognized in the woods. Their hardened, thorny spines scattered along the woody stems have caused many a person to leave the woods with torn clothing, painful scratches, and a sharp temper.

Usually the vines do not compete with timber, but occasionally common greenbriers overburden young trees or twist around the trunks of larger trees. Greenbriers often form tangled thickets, impenetrable even to deer. In an east Texas study, saw greenbrier was heavily grazed by deer throughout the year. In fact, it was second among 16 browse species in the percentage of total twigs browsed during the winter. Common greenbrier was grazed less than saw greenbrier, and cat greenbrier far less than either one. Laurel greenbrier is probably the most palatable of the group.

Greenbriers are hardy and can withstand heavy use, probably because the tubers and rhizomes contain plentiful food reserves. An east Texas researcher found that clipping all the new growth each month affected greenbriers least of several browse species studied. In studies at the Stephen F. Austin Experimental Forest near Nacogdoches greenbriers were not adversely affected by removing as much as 25 percent of the foliage for 3 consecutive years in April and August.

Compared with plants grown beneath a stand of pine trees, those grown in the open produce more foliage with more crude protein and phosphorus, and less crude fiber. Thus the culture of greenbriers in forest openings can improve the habitat for deer.

In spring, greenbrier browse provides a food with adequate nutrients for deer. Thereafter, the plants are primarily maintenance forages. Leaves consistently contain more protein than twigs. Because some species of greenbriers keep their leaves longer than many plants, they are important during early winter when food is usually scarce.

Most greenbrier management has been accidental, through prescribed burning and timber culture. High-climbing canes of laurel and lanceleaf greenbriers soon grow beyond reach of deer, but fire and ground disturbances kill top growth, causing plants to resprout. In one instance, greenbriers continued to resprout for 4 years, even though all top growth was frequently removed. The new sprouts are within easy reach of deer and are more succulent and nutritious than older stems. Also, a fire makes the area more accessible by temporarily thinning out thickets. For these reasons, controlled burning every few years appears to be a good way of encouraging fresh growth of palatable greenbriers that will contribute to the wildlife potential of a forest tract in the South.

SNAPPERS ARE SOCIABLE

by McFadden Duffy

There is something downright sociable about snappers. This is particularly true of the deep, brick-red Pensacola snappers. They are generally found in schools and while they can be crafty, choosy and somewhat intelligent, they have two weaknesses that make them attractive for gulf anglers.

One is a robust appetite for natural food. Shrimp, small crabs and fish, or plain cut bait will entice them. The other is the fact that when located they accommodate fishermen by staying around.

Consequently it is possible to virtually fish-out a large school of snappers without much moving around. Basic tackle requirements are simple. All that is needed is a stout rod, a heavy line, strong hooks, ample lead, a good supply of bait, plenty of muscle and a likely place where snappers are probably congregated. Many private boats and most charter boats use a fathometer to locate sunken wrecks or natural reefs where snappers often can be found in great numbers.

For most snapper fishermen the approximately 3,000 offshore drilling platforms, producing wells and oil and gas completion structures, as well as the offshore sulphur mines, provide "artificial reefs" costing untold billions of dollars. A single such fish-attracting structure may carry a price tag of several million dollars.

Louisiana anglers are lucky in that the offshore oil operations have provided thousands of "reefs" to attract snappers. In many coastal states, attempts have been made to create similar structures with old automobile bodies and other debris. Those reefs are costly, present hazards to navigation, and are detrimental to shrimp trawling operations.

With its entire coastline flanked by rigs, resembling steel spiders marching ever farther into the gulf, it is only natural that Louisiana salt water fishermen have a snapper bonanza right at their door steps.

The Pensacola snapper is the one most frequently caught by Louisiana's coastal anglers. It has other names but is popularly known as the red snapper. The range of this bottom feeder is from the Florida coast to the West Indies and Brazil, and in the Gulf of Mexico.

The bright brick hue distinguishes it, shading to a paler red on the belly and throat. The fins are red. This member of the snapper family is probably the easiest to identify.

Snapper fishermen run across the mangrove snapper with some degree of regularity. Once a fisherman has taken a few mangrove snappers he is able to identify them at a glance.

They're a bronze-green, shading into a brassy-red on the sides. The belly is a light gray, interspersed with dark markings on the scales. They are positively identified by dark streaks that run across the eyes and fade toward the dorsal fins.

If any member of the snapper family is to be considered wily, the mangrove snapper is probably the smartest. You might catch one or two out of a small bunch, or a half-dozen from a school. They wise up quickly and disappear. School's out.

It doesn't take too many snapper fishing trips to cross the path of the lane snapper. As is the case with the mangrove snapper, this species is not unusual in Louisiana waters although it is far from plentiful.

The lane snapper is generally rose colored, shading off to a silvery hue and sometimes an olive cast. There is a series of deep golden stripes along the sides that assure positive identification. It is not considered a schooling fish although there are numerous cases where several have been taken on a single trip.

Muttonfish, another member of the snapper family, have been reported in Louisiana waters. They are rather rare and are generally larger than either lane or mangrove snappers. Coloration ranges from a black orange-red to salmon. It has black spots on either side of the back near the junction of the hard and soft dorsal. There's a prominent blue streak from the nostril to the eye.

The cubera snapper is a rare visitor to Louisiana waters and is native to the West Indies and the Bahamas. It is the largest member of the snapper family.

Marion Higgins, venerated weighmaster for most of the largest salt water fishing rodeos staged in Louisiana, is of the opinion that a snapper weighing 74 pounds, caught by Jim Meriwether in October of 1963, is a cubera snapper. It holds first place on the "Top Ten" for the species as kept by the Louisiana Outdoor Writers Association.

This is also his belief concerning a large snapper taken by Pete Fitzmorris, underwater spearfisherman. His opinion on Fitzmorris' fish is predicated on exacting examination of a photograph.

Both opinions are based on the most recent information available to the researcher. It is accepted in fisheries circles that the largest red snappers taken as of 1967 reached only 34 pounds. A similarity in coloring may account for the mistaken identity. The cubera greatly resembles the red snapper in color and other characteristics.

Most large snapper catches are taken at great depth on heavy tackle. Near offshore petroleum structures in more shallow water snappers can be scrappy on light tackle. Wherever they are taken along the coast they are prized by fishermen. Snappers are difficult to surpass on the table, they are big and plentiful, they bite well when many other fish are moody, they are here all year round, and fishing for them is a companionable sport.

THE CHRISTMAS GUN

by Lyn Johnson

It's a big moment in a boy's life when he gets a gun for Christmas. But more important to him will be the instruction in hunter safety and responsibility which he learns from his father and by participating in a safety course.

Demonstrations of how to handle a gun properly are an integral part of the hunter safety classes. Students gather around as the instructor shows the right way to load a gun and work the action. Getting in and out of a boat can be tricky, but carrying a gun at the same time can double the difficulty. Extra caution and care in holding the gun and passing it to one in a boat must be practiced.

Actual firing on the range drives home the impressions learned from the lectures aand demonstrations in the classroom.

Using rope as a mock fence, the instructor holds "barbedwire" while his student crosses over then hands the boy his gun.

On the opposite page, the boy puts his teaching into action out in the field with his father, who gives the boy more. At a real fence, the boy crosses over while his father holds the guns, then hands them to his son on the other side.

With the ringing in of a new year, Christmas lingers on as a beautiful memory of happiness and crumpled wrappings.
Last Christmas was a big one, especially for a growing 10-year-old boy who loves the great Louisiana outdoors. Under the tree, Robbie found a shiny, brand-new shotgun.

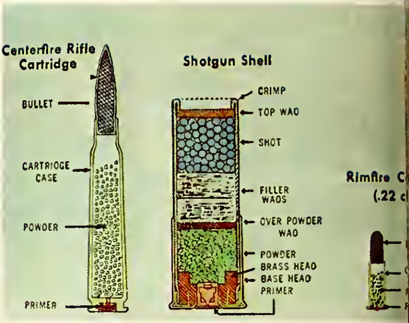
But, before Robbie's dad would give him ammunition to hunt squirrels, rabbits and ducks, Robbie would have to learn the proper and safe way of handling and caring for guns. In this way, the boy who receives a Christmas gun will have much more than just a gun. He will have instruction from his father and from one of the many hunter safety courses taught to children and adults throughout the state by some 250 instructors working voluntarily for the Louisiana Wild Life and Fisheries Commission.

In a classroom with about 50 other boys and girls Robbie is taught that a gun is a tool, not a dangerous device. If used and cared for properly, a gun will not cause a person harm. Basically, the gun is a piece of steel tube and wood fastened together. When the action is loaded, it becomes more sophisticated.

Robbie learned the difference between a shotgun which has a smooth-bored barrel and a rifle which has a spirally-grooved barrel. Ammunition consists of four parts: The cartridge case, primer, powder and the projectiles. Other primary rules of hunter safety include: Do not point at anything you don't want to shoot; be sure of the target; have an adequate backstop; and always respect the gun as if it were loaded.

Hours of training gives years of safety to the hunter in the field. The boy proudly shows his father the first game bird he bagged after learning the important lessons, such as knowing what makes up the inside of a cartridge and what makes it fire.

He also knows that hunter safety and responsibility begins in his mind.



When at home, Robbie must be sure that the gun and ammunition are stored separately under lock and key and not leaning up in a corner. The safest way is in a proper rack, cabinet or locker to keep the gun out of the reach of smaller children. The gun should be stored with the action open and oiled to prevent rust.

After absorbing this vital information, Robbie and his classmates went outdoors where they could handle the guns under instructor supervision. Robbie learned that the action of a gun must be open when crossing a log, crossing a fence and getting in and out of a car.

Robbie followed the instructor across a log. He crossed a fence the right way, by placing the gun under the fence, moving between the wires, walking over and picking the gun up by the stock—not by pulling the gun with the muzzle. Robbie learned to carry the gun so that he can control the direction of the muzzle if he trips or falls. He also learned never to run when carrying a gun.

In the field, Robbie practiced seeing his zone of fire so that when he goes hunting he won't point the muzzle at people. Other field rules are to let someone know where you are going; be sure that the target is legal game—know the species and seasons; don't shoot at a moving bush; have a clear identification of the target; and know that a gun can be pointed and will shoot where pointed. The brains of a gun are behind it.

Range procedure taught the little hunters how to sight in a target and the proper shooting positions from sitting, kneeling, flat on the ground, off-hand and standing. When it was time to pull the trigger, Robbie learned breath control—take a deep breath, exhale and let half of the breath out, then squeeze the trigger.

Although Robbie is only 10 years old, as a hunter he will carry a lot of grown-up responsibility. The responsible hunter will not shoot at power lines, signs, etc. He will read signs, never carry a gun in an unsafe manner, track game if an animal is wounded, will not build improper fires, bury garbage, will not litter, will close gates, ask permission to hunt, and most important, he will stop and think before acting.

By applying common sense, Robbie and all hunters will have a safe and enjoyable time in the outdoors.

Through the hunter safety course and the instruction given by his father, Robbie will grow up knowing that true safety is in the mind. Many years from now he will give his son a Christmas gun . . . and more.